Fig. *1*. pH-Dependence of the hydrolysis of CBZ-ALa-Ile catalyzed by the carboxypeptidase (25°C, 50 mM acetate buffer and 50 mM citric acid/KH_2PO_4 buffer at pH 2.9 and 3.3)

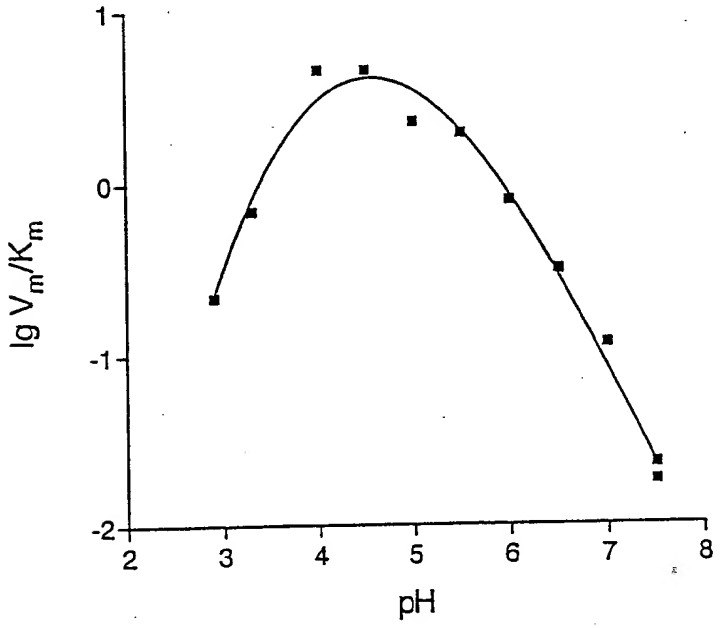
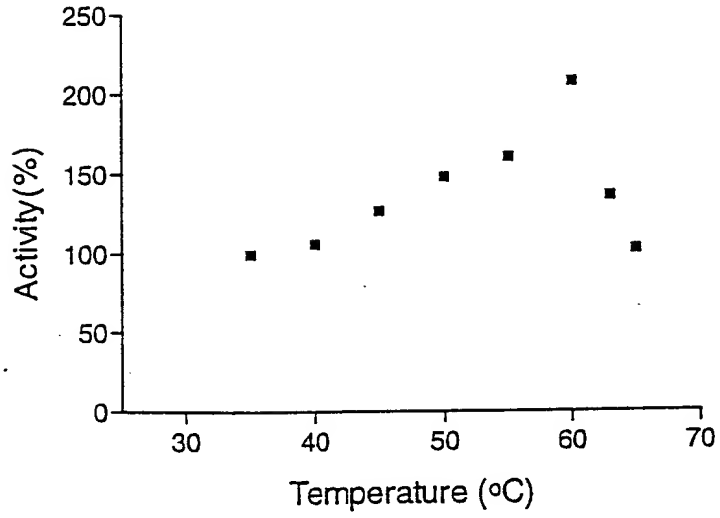


Fig. 2. Temperature optimum of hydrolysis of CBZ-Ala-Ile (1.5 mM) by the carboxypeptidase (50 mM acetic buffer, pH 4.0)



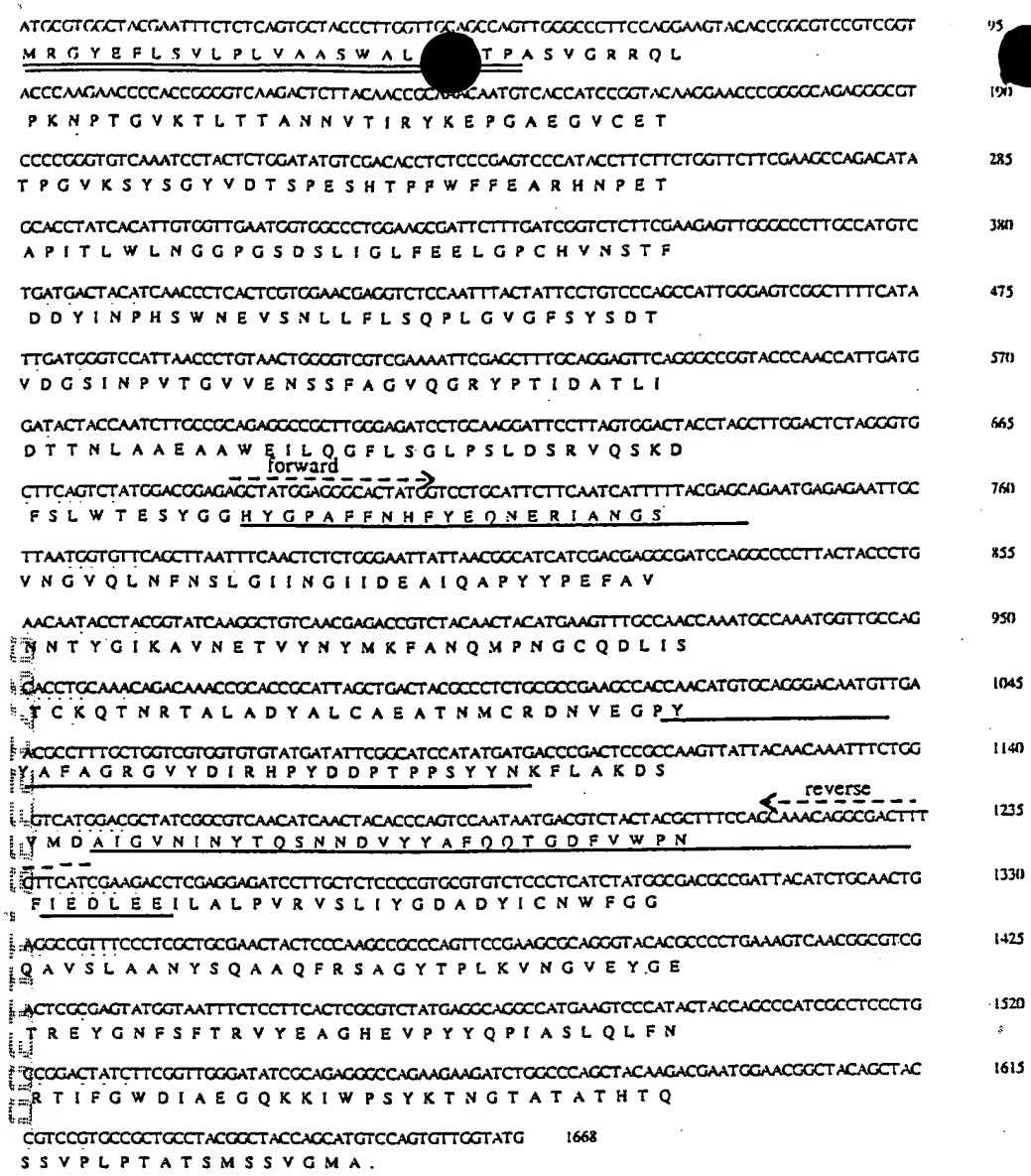
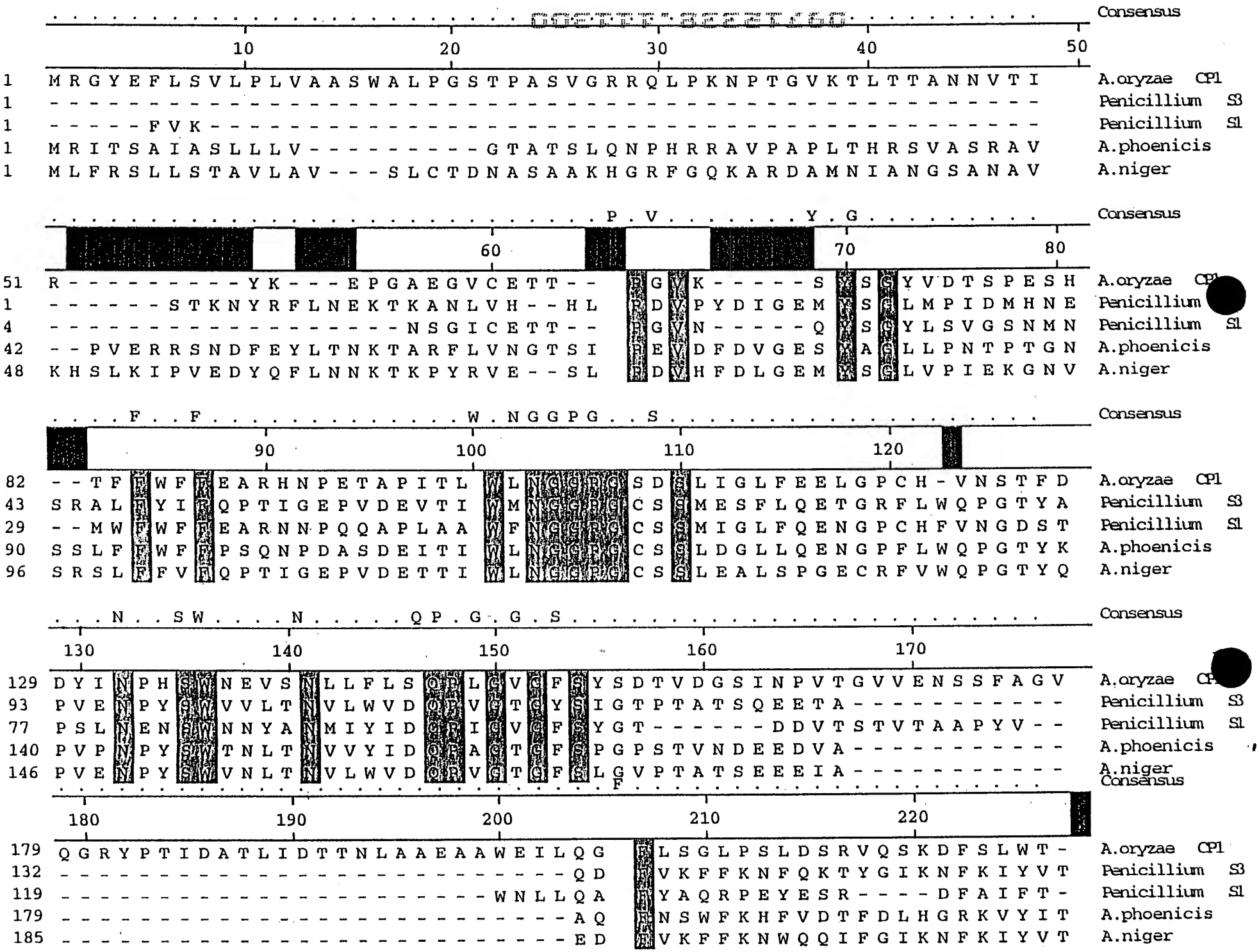


Figure 3: DNA sequence and deduced amino acid sequence of *Aspergillus oryzae* strain ATCC 20386 carboxypeptidase I. Amino acids determined by protein sequencing of purified *A. oryzae* ATCC 20386 carboxypeptidase I are underlined. Primer positions used in PCR are indicated by dotted arrows. Predicted signal sequence peptide is double underlined.


Consensus
10 20 30 40 50
1 MRGYEFLSVLPLVAASWALPGSTPASVGRRQLPKNPTGVKTLTTANNVTI A.oryzae CP1
1 ---------- Penicillium S3
1 -----FVK---------- Penicillium S1
1 MRITSAIASLLLV----------GTATSLQNPHRRAVPAPLTHRSVASRAV A.phoenicis
1 MLFRSLLSTAVLAV---SLCTDNASAAKHGRFGQKARDAMNIANGSANAV A.niger
Consensus
60 70 80
51 R----------YK---EPGAEGVCETT-- RGYK-----SYSGYVDTSPESH A.oryzae CP1
1 ------STKNYRFLNEKTKANLVH--HL RDVPYDIGEMYSGLMPIDMHNE Penicillium
4 ----------NSGICETT-- RGVN-----QYSGYLSVGSNMN Penicillium S1
42 --PVERRSNDFEYLTNKTARFLVNGTSI REVDFDVGESYAGLLPNTPTGN A.phoenicis
48 KHSLKIPVEDYQFLNNKTKPYRVE--SL RDVHFDLGEMYSGLVPIEKGNV A.niger
Consensus
90 100 110 120
82 --TFFWFFEARHNPETAPITL WLNGGPGSDSLIGLFEELGPCH-VNSTFD A.oryzae CP1
43 SRALFYIFQPTIGEPVDEVTI WMNGGPGCSSMESFLQETGRFLWQPGTYA Penicillium S3
29 --MWFWFFEARNNPQQAPLAA WFNGGPGCSSMIGLFQENGPCHFVNGDST Penicillium S1
90 SSLFFWFFPSQNPDASDEITI WLNGGPGCSSLDGLLQENGPFLWQPGTYK A.phoenicis
96 SRSLFFVFQPTIGEPVDETTI WLNGGPGCSSLEALSPGECRFVWQPGTYQ A.niger
Consensus
130 140 150 160 170
129 DYINPHSWNEVSNLLFLSQPLGVGFSYSDTVDGSINPVTGVVENSSFAGV A.oryzae CP1
93 PVENPYGWVVLTNVLWVDQPVGTGYSIGTPTATSQEETA---------- Penicillium S3
77 PSLNENSWNNYANMIYIDQPIGVGFSYGT-------DDVTSTVTAAPYV-- Penicillium S1
140 PVPNPYSWTNLTNVVYIDQPAGTGFSPGPSTVNDEEDVA---------- A.phoenicis
146 PVENPYSWVNLTNVLWVDQPVGTGFSLGVPTATSEEEIA---------- A.niger
Consensus
180 190 200 210 220
179 QGRYPTIDATLIDTTNLAAEAAWEILQG RLSGLPSLDSRVQSKDFSLWT- A.oryzae CP1
132 ----------QD RVKFFKNFQKTYGIKNFKIYVT Penicillium S3
119 ----------WNLLQA RYAQRPEYESR----DFAIFT- Penicillium S1
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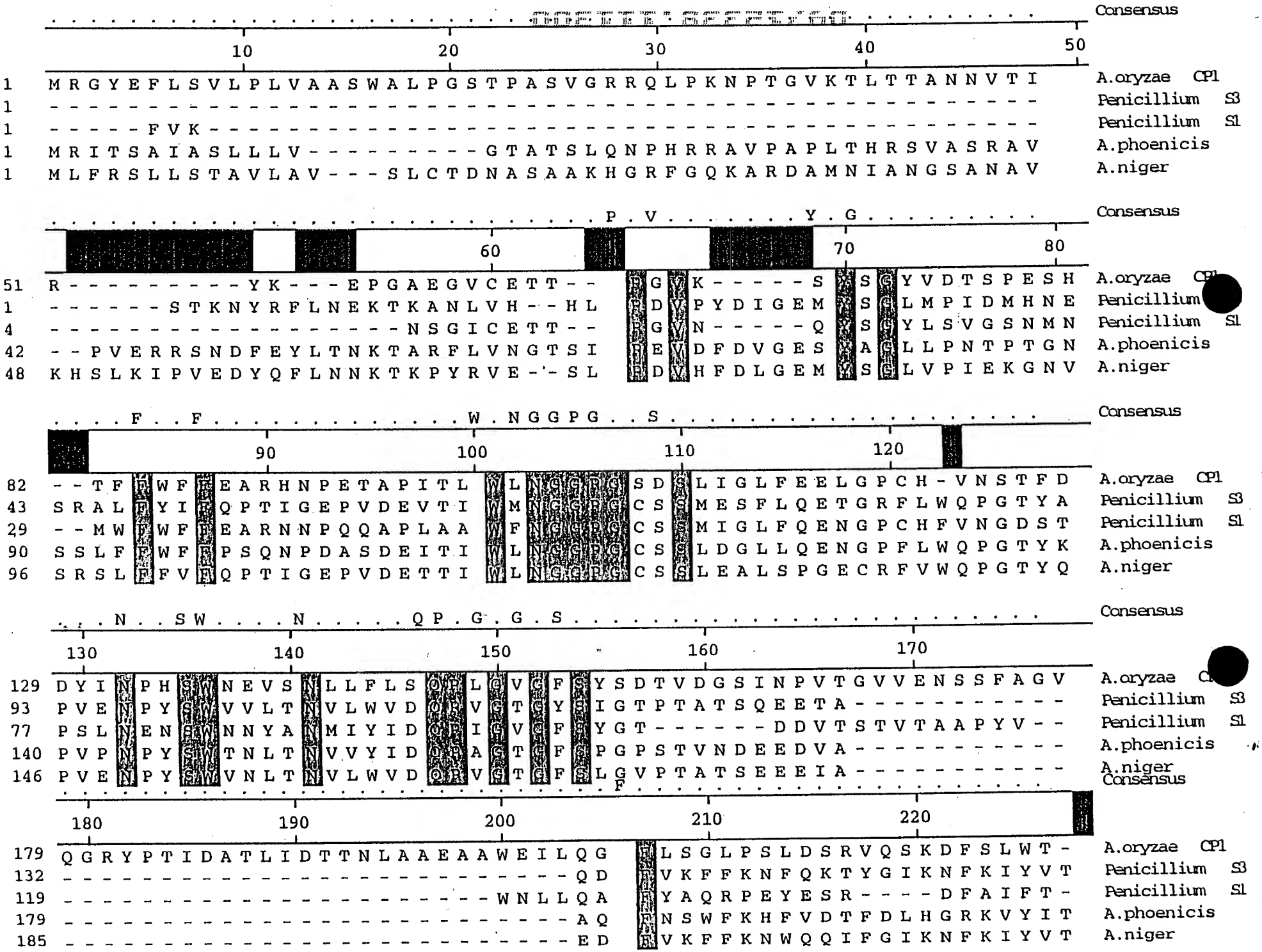
Consensus
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30
40
50
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1 - Penicillium S3
1 - - - - - F V K - Penicillium S1
1 M R I T S A I A S L L L V - - - - - - - - - - G T A T S L Q N P H R R A V P A P L T H R S V A S R A V A.phoenicis
1 M L F R S L L S T A V L A V - - - S L C T D N A S A A K H G R F G Q K A R D A M N I A N G S A N A V A.niger
Consensus
60
70
80
51 R - - - - - - - - - - Y K - - - E P G A E G V C E T T - - P G V K - - - - - S V S G Y V D T S P E S H A.oryzae CP1
1 - - - - - - S T K N Y R F L N E K T K A N L V H - - H L P D V P Y D I G E M V S G L M P I D M H N E Penicillium S3
4 - N S G I C E T T - - P G V N - - - - - Q V S G Y L S V G S N M N Penicillium S1
42 - - P V E R R S N D F E Y L T N K T A R F L V N G T S I P E V D F D V G E S V A G L L P N T P T G N A.phoenicis
48 K H S L K I P V E D Y Q F L N N K T K P Y R V E - - S L P D V H F D L G E M V S G L V P I E K G N V A.niger
Consensus
90
100
110
120
82 - - T F F W F F E A R H N P E T A P I T L W L N G G P G S D S L I G L F E E L G P C H - V N S T F D A.oryzae CP1
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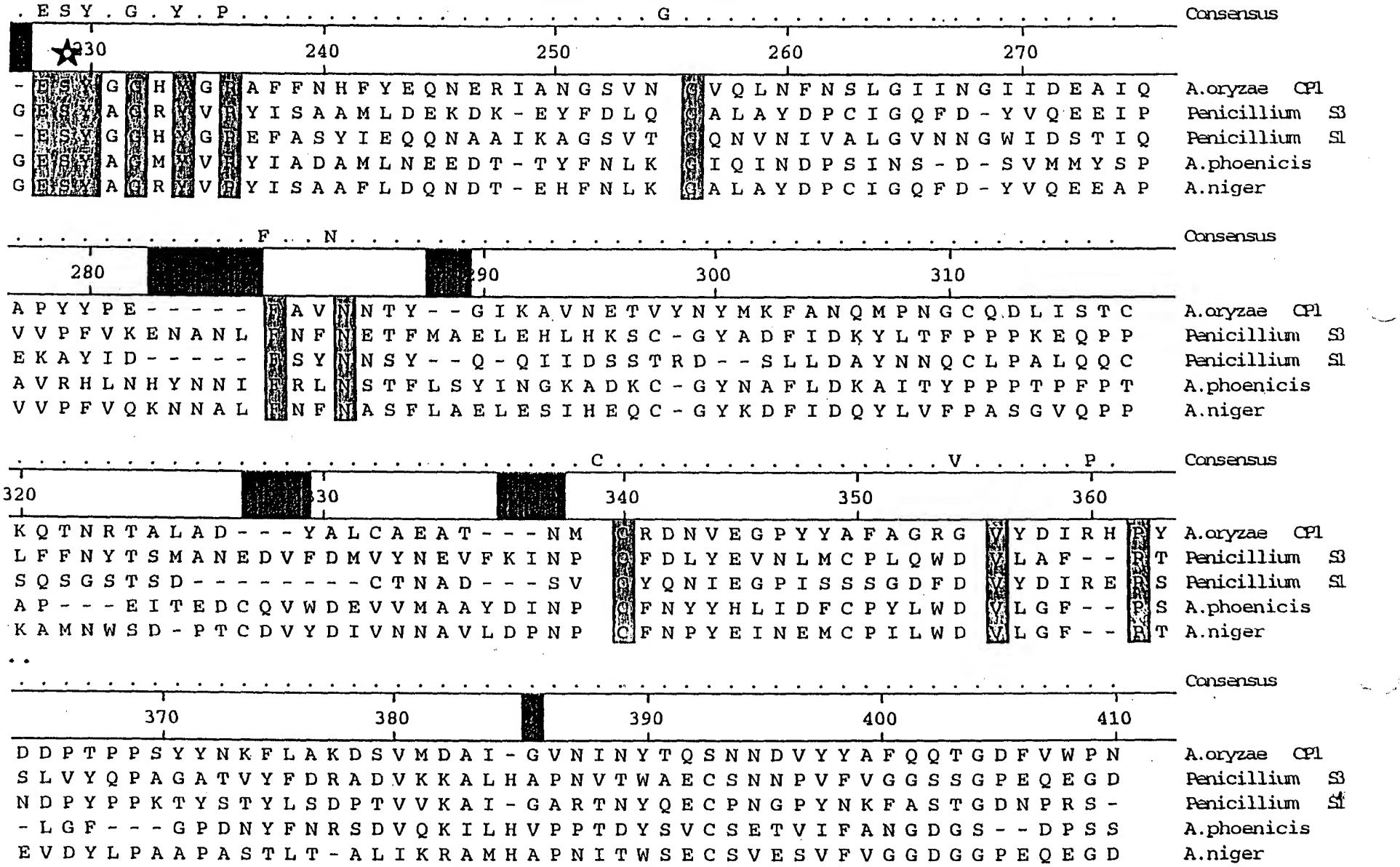
29 - - M W F W F F E A R N N P Q Q A P L A A W F N G G P G C S S M I G L F Q E N G P C H F V N G D S T Penicillium S1
90 S S L F F W F F P S Q N P D A S D E I T I W L N G G P G C S S L D G L L Q E N G P F L W Q P G T Y K A.phoenicis
96 S R S L F F V F Q P T I G E P V D E T T I W L N G G P G C S S L E A L S P G E C R F V W Q P G T Y Q A.niger
Consensus
130
140
150
160
170
129 D Y I N P H S W N E V S N L L F L S Q R L G V G F S Y S D T V D G S I N P V T G V V E N S S F A G V A.oryzae CP1
93 P V E N P Y S W V V L T N V L W V D Q R V G T G Y S I G T P T A T S Q E E T A - - - - - - - - - - - Penicillium S3
77 P S L N E N S W N N Y A N M I Y I D Q R I G V G F S Y G T - - - - - - D D V T S T V T A A P Y V - - Penicillium S1
140 P V P N P Y S W T N L T N V V Y I D Q R A G T G F S P G P S T V N D E E D V A - - - - - - - - - - - A.phoenicis
146 P V E N P Y S W V N L T N V L W V D Q R V G T G F S L G V P T A T S E E E I A - - - - - - - - - - - A.niger
Consensus
180
190
200
210
220
179 Q G R Y P T I D A T L I D T T N L A A E A A W E I L Q G L S G L P S L D S R V Q S K D F S L W T - A.oryzae CP1
132 - Q D V K F F K N F Q K T Y G I K N F K I Y V T Penicillium S3
119 - W N L L Q A Y A Q R P E Y E S R - - - - D F A I F T - Penicillium S1
179 - A Q N S W F K H F V D T F D L H G R K V Y I T A.phoenicis
185 - E D V K F F K N W Q Q I F G I K N F K I Y V T A.niger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156 G E S Y A C R M V R Y I S A A M L D E K D K - E Y F D L Q C A L A Y D P C I G Q F D - Y V Q E E I P Penicillium S3
142 - E S Y G C H M G R E F A S Y I E Q Q N A A I K A G S V T C Q N V N I V A L G V N N G W I D S T I Q Penicillium S1
203 G E S Y A C M M V R Y I A D A M L N E E D T - T Y F N L K C I Q I N D P S I N S - D - S V M M Y S P A.phoenicis
209 G E S Y A C R M V R Y I S A A F L D Q N D T - E H F N L K C A L A Y D P C I G Q F D - Y V Q E E A P A.niger
. . . . . F . . N . . . . . Consensus
280 290 300 310
277 A P Y Y P E - - - - - F A V N N T Y - - G I K A V N E T V Y N Y M K F A N Q M P N G C Q D L I S T C A.oryzae CP1
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257 V V P F V Q K N N A L F N F N A S F L A E L E S I H E Q C - G Y K D F I D Q Y L V F P A S G V Q P P A.niger
. . . . . C . . . . . V . . . . P . Consensus
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320 K Q T N R T A L A D - - - Y A L C A E A T - - - N M C R D N V E G P Y Y A F A G R G V Y D I R H P Y A.oryzae CP1
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299 A P - - - E I T E D C Q V W D E V V M A A Y D I N P C F N Y Y H L I D F C P Y L W D V L G F - - P S A.phoenicis
306 K A M N W S D - P T C D V Y D I V N N A V L D P N P C F N P Y E I N E M C P I L W D V L G F - - R T A.niger
. . Consensus
370 380 390 400 410
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270 N D P Y P P K T Y S T Y L S D P T V V K A I - G A R T N Y Q E C P N G P Y N K F A S T G D N P R S - Penicillium S1
344 - L G F - - - G P D N Y F N R S D V Q K I L H V P P T D Y S V C S E T V I F A N G D G S - - D P S S A.phoenicis
353 E V D Y L P A A P A S T L T - A L I K R A M H A P N I T W S E C S V E S V F V G G D G G P E Q E G D A.niger